

Claims

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21. (Currently Amended) A method for coordinating an first level object route directed first workflow and with an independent second level route directed workflow separate from the first workflow, using an object step to derive the route for the second workflow from the object route for the first workflow, the method comprising:

defining a first object step with an associated first route segment, a sequence of steps to be connected to other route segments;

defining a second object step with an associated second route segment, a sequence of steps to be connected to other route segments;

defining a first level workflow means, including an Enterprise Resource Planning (ERP) system, directed by an object route, a sequence of object steps;

defining an independent second level workflow means, including a shopfloor system, separate, independent, and operating asynchronous from the first workflow means, directed by a route, a sequence of steps;

defining a first object route, a sequence of object steps, including the first object step and second object step, providing conditional branches, parallel paths, and loops such that all connected object steps are included;

forming a first route from the first object route by connecting the route segments associated with each object step, including the first route segment and second route segment, in the sequence of the object steps of the first object route where the first route is separate and independent if not connected to the first object route;

providing the first object route to direct the first level workflow means;

providing the first route to direct the independent second level workflow means;

such that the first level workflow starts the first object route and the independent second level workflow starts the first route; and, the independent second level workflow completes the first route and the first level workflow completes the first object route.

22. (Currently Amended) The method of Claim 21 wherein a third object step with an associated second-third route segment follows the first-second object step in the sequence of object steps of the first object route and the second-third route segment provides a feedback connection to the first-second route segment in forming the first route.

23. (Previously Amended) The method of Claim 21 wherein the first object step with an associated fourth route segment as an alternative route segment such that either the first route segment or the fourth route segment is selected when forming the first route.

24. (Currently Amended) The method of Claim 21 wherein the first route segment signals the first object step when the first route segment begins directing the second level-workflow.

25. (Currently Amended) The method of Claim 21 wherein the first route segment signals the first object step when the first route segment completes directing the second level-workflow.

26. (Previously Amended) The method of Claim 21 wherein the first route segment signals the first object step the number of identifiers, including barcode and Radio Frequency Identifier (RFID), read by a step in the first route segment.

27. (Previously Amended) The method of Claim 21 wherein the first route segment signals the first object step the net number of identifiers, including barcode and Radio Frequency Identifier (RFID), read by a step in the first route segment by subtracting the number of identifiers read on a feedback path from the number of identifiers read.

28. (Previously Amended) The method of Claim 21 wherein the first route segment signals the first object step the identifier, including barcode and Radio Frequency Identifier (RFID), read by a step in the first route segment.

29. (Currently Amended) A method for creating a detailed route to direct an independent detailed workflow, ~~including a Shopfloor system~~, from a abstraction route defined to direct an abstraction workflow which is separate, independent, and asynchronous from the detailed workflow, including an Enterprise Resource Planning (ERP) system, using an object step, the method comprising:

defining a first object step with an associated first route segment, a sequence of steps to be connected to other route segments;

defining a second object step with an associated second route segment, a sequence of steps to be connected to other route segments;

defining a first abstraction route, a sequence of object steps including the first object step and second object step, providing conditional branches, parallel paths, and loops such that all connected object steps are included to direct an abstraction workflow to implement the abstraction level of a process;

creating a first detailed route from the first abstraction route by independently connecting the route segments, including the first route segment and second route segment,

associated with each object step in the sequence of the object steps of the first abstraction route where the connection of the route steps are separate from the object steps such that the first detailed route directs the detailed workflow to implement the detailed level of the process and the first abstraction route directs the abstraction workflow to implement the abstract level of the process.

30. (Currently Amended) The method of Claim 29 wherein a third object step with an associated second-third route segment follows the first-second object step in the sequence of the object steps of the first abstraction route and the second-third route segment provides a feedback connection to the first-second route segment in forming the first detailed route.

31. (Previously Amended) The method of Claim 29 wherein the first object step with an associated fourth route segment as an alternative route segment such that either the first route segment or the fourth route segment is selected when forming the first detailed route.

32. (Currently Amended) A system using an object step for coordinating an abstraction level workflow directed by an object route and an independent, separate, asynchronous detailed level workflow directed by a route, the system comprising:

a first computer system connected to a network, including the Internet, and executing an abstraction level workflow program, including an Enterprise Resource Planning (ERP) system, directed by an object route, a sequence of object steps;

a second computer system connected to the network and executing an independent, separate, asynchronous detailed level workflow program, including a Shopfloor system, directed by a route, a sequence of steps;

a first object step with an associated first route segment, a sequence of steps to be connected to other route segments;

a second object step with an associated second route segment, a sequence of steps to be connected to other route segments;

a first object route, a sequence of object steps, including the first object step and second object step, providing conditional branches, parallel paths, and loops such that all connected object steps are included;

a third computer system connected to the network and executing a conversion program to create a route from an object route by connecting the route segments associated with each object step in the sequence of the object steps in the object route where these connections are independent and separate of the connections of the object route;

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the third computer system and conversion program are provided the first object route and the conversion program creates a first route including the first route segment and second route segment;

the third computer provides the first object route to the first computer such that the abstraction level workflow program is directed by the first object route;

the third computer provides the first route to the second computer such that the independent detailed level workflow program is directed by the first route;

such that the first object route begins directing the abstract level workflow and the first route begins directing the independent, separate, asynchronous detailed level workflow; and, the first route completes and the first object route completes.

33. (Currently Amended) The method of Claim 32 wherein a third object step with an associated second-third route segment follows the first-second object step in the sequence of the object steps of the first object route and the second-third route segment provides a feedback connection to the first-second route segment. |

34. (Previously Amended) The method of Claim 32 wherein the first object step with an associated fourth route segment as an alternative route segment such that either the first route segment or the fourth route segment is selected when forming the first route.

35. (Previously Amended) The method of Claim 32 wherein the first route segment signals the first object step when the first route segment begins directing the detailed level workflow.

36. (Previously Amended) The method of Claim 32 wherein the first route segment signals the first object step when the first route segment completes directing the detailed level workflow.

37. (Previously Amended) The method of Claim 32 wherein the first route segment signals the first object step the number of identifiers, including barcode and Radio Frequency Identifier (RFID), read by a step in the first route segment.

38. (Previously Amended) The method of Claim 32 wherein the first route segment signals the first object step the net number of identifiers, including barcode and Radio Frequency Identifier (RFID), read by a step in the first route segment by subtracting the number of identifiers read on a feedback path from the number of identifiers read.

39. (Previously Amended) The method of Claim 32 wherein the first route segment signals the first object step the identifier, including barcode and Radio Frequency Identifier (RFID), read by a step in the first route segment.